23093

C23-CHPC-CHPP-EE-EEVT-CHOT–104

23093

BOARD DIPLOMA EXAMINATION, (C-23)

MARCH/APRIL—2026

FIRST YEAR (COMMON) EXAMINATION

ENGINEERING CHEMISTRY AND ENVIRONMENTAL STUDIES

Time : 3 hours] [*Total Marks* : 80

PART—A

3×10=30

Instructions : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. State and explain Aufbau's principle.

2. Define Orbital. Draw the shapes of s and p-orbitlas.

3. Define mole. Find the number of moles present in 120 gm of NaOH.

4. Define *(i)* Ionic product of water and *(ii)* pH.

5. Define electrolyte and non-electrolyte. Give an example.

6. Explain Anodic coating of metals. Give an example.

7. Define soft water and hard water with its examples.

8. Define addition polymerisation. Give an example.

9. Write any three advantages of hydrogen gas as a fuel.

10. What is e-waste? State the sources of e-waste.

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PART—B

10×5=50

Instructions : (1) Answer *any* **five** questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and the criteria for valuation is the content but not the length of the answer.

11. Define covalent bond. Explain the formation of a covalent bond in O_2 and N_2 molecules using Lewis dot method. 10

12. Define molarity and normality. Calculate the molarity and normality of 250 ml of solution that contains 4.9 gm of sulphuric acid (H_2SO_4). 10

13. *(a)* Write main postulates of Bohr's atomic model. 5

(b) Define buffer solution. Write any three applications of buffer solution. 5

14. Define Galvanic cell. Explain the construction and working of galvanic cell with a neat diagram. 10

15. *(a)* Explain the composition cell formation with an example. 5

(b) Define corrosion. Explain any three factors that influence the rate of corrosion. 5

16. Define hard water. Explain Ion-exchange process of softening of hard water with a neat diagram. 10

17. *(a)* Define Plastic. Write the preparation and two uses of *(i)* PVC *(ii)* Teflon. 6

(b) Write the composition and two applications of *(i)* Nichrome *(ii)* Duralumin. 4

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18. *(a)* Explain any three methods used to control water pollution. 6

(b) Write a short note on Acid rain. 4

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